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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant(s): van de Grampel, et al.

Application No.: 10/064,520

Filed: 7/23/2002

Title: Limited Play Optical Media with
Improved Shelf Life and Playability

Attorney Docket No.: GEPL.P-056

Customer No.: 021121

Group Art Unit: 1700

Examiner: Elizabeth Evans Mulvaney

Confirmation No:

Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION

Dear Sir:

This communication is in response to the Office Action mailed September 3, 2003 for the above-captioned application. Reconsideration and further examination are respectfully requested.

Applicants request an extension of time sufficient to make this paper timely and enclose the fee. The Commissioner is authorized to charge any additional fees or credit any overpayments to Deposit Account No. 15-0610.

I hereby certify that this paper and any attachments named herein are transmitted to the United States Patent and Trademark Office, Fax number: (703) 872-9306 on December 30, 2003.

Marina T. Larson
Marina T. Larson, PTO Reg. No. 32,038

December 30, 2003
Date of Signature

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Claim Rejections - 35 USC § 102

The Examiner rejected claims 1-39 under 35 U.S.C. 102(e) as being anticipated by Thompson et al ("*Thompson*").

The Examiner states that *Thompson* discloses "an optical disk comprising a substrate having data formed thereon, a reflective layer, a reactive layer, and a second substrate (see figure 2)." "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." *Verdegaal Bros v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicants submit that this legal requirement is not met in this case with reference to Fig. 2 of *Thompson* relied upon by the Examiner.

Claim 1 of the present application requires:

A limited-play optical medium, comprising a plurality of layers, including in sequence:

- (a) a first substrate layer,
- (b) a data layer,
- (c) a reflective layer,
- (d) a reactive layer comprising a dye having a reduced state and an oxidized state and further comprising an oxidized form of a reducing agent, said reducing agent being effective to convert the dye from the oxidized state to the reduced state, and
- (e) a second substrate layer,

wherein the dye in the reduced state is substantially transparent to light of wavelengths used to read the optical medium, and wherein the dye in the oxidized state absorbs light of wavelengths used to read the optical medium; and wherein the reflective layer is formed from a metal or metal alloy which is not significantly oxidized by the oxidized form of the reducing agent.

Thompson states that Figure 2 is a "cross sectional view of the layers typical of a DVD-5 construct," (Detailed Description, paragraph 0040). *Thompson* continues, "the bonding layer [in Figure 2] could play a part in the expiration process for a DVD-5 that does not rely on direct interference with the reading laser (e.g., by corroding the reflective metal layer that is in contact with the bonding layer)." The same paragraph of *Thompson* also states that "it would not be possible to make this type of disc expire by transitioning the bonding layer to a state that prevents the reading laser from reading the data on the disk," because the "bonding layer is not in the optical path." *Thompson* further explains Figure 2 in paragraph 0054 of the Detailed Description. "In the case of a DVD-5, which is a single layer disc illustrated in Fig. 2, the L0

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substrate 100 is covered with a thin reflective layer 105 of aluminum by a sputtering process. This creates a metallic coating between 60 and 100 angstroms thick (the L0 layer). The L0 substrate 100 is then bonded 110 to a blank L1 substrate, as illustrated in Figure 3." The layers described in *Thompson's* Figure 2 are shown below in FIGURE A.

The component parts of Fig. 2 of the *Thompson* the reference and the present claims are set forth in the following diagram:

The Layers of DVD-5 of Figure 2	The Layers of the Present Application
L1 Substrate	First Substrate
Bonding Layer (which corrodes the reflective layer below) not in optical path	Reactive Layer comprising a dye..., and an oxidized form of a reducing agent. In optical path
Reflective Layer of Aluminum (i.e. the metal which IS corroded by the bonding layer), defines data by conforming to shape of L0 substrate.	Reflective Layer formed from a non-significantly oxidizing metal (i.e. is NOT corroded by the bonding layer)
L0 Substrate	Data layer
	Second Substrate

FIGURE A: Figure 2 of *Thompson* vs. Present Application

As is apparent, the nature of the metals in the reflective layer of *Thompson* and the reflective layers of the invention are different. The embodiment of *Thompson* shown in Fig. 2 requires

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that the metal be corroded. The present invention requires a metal that is not significantly oxidized (or corroded).

The Examiner also states that "the reactive layer [of Thompson] may be formed of a leuco methylene blue and a tin ethylhexanoate reducing agent (see claims 1, 11, and 21)." It should be noted, however, that in Fig. 2, the reactive layer is the metal reflective layer. Whether or not this falls within the scope of claim 1 of the *Thompson* publication, there is no teaching of making a device with dye in the bonding layer of *Thompson*. Indeed, as noted above, *Thompson* specifically states that this will not work.

Applicants would like to direct the Examiner to Fig. 20 of *Thompson* which actually appears to be closer than Fig. 2 to the present invention because it contains layers of gold, and a leuco dye material. This embodiment of *Thompson*, however, still does not anticipate the pending claims.

The Layers of <i>Thompson</i>	The Layers of the Present Application
L1 Substrate with data	second Substrate
L1 reflective layer (presumably aluminum per Col, 4, line 2)	Data Layer
Reactive Layer Comprising leuco methylene blue	Reflective Layer formed from a non significantly oxidizing metal (i.e. is NOT corroded by the reactive layer)
Semi-Reflective Metal layer of Gold, Silver, or Silicon in lead in area, not covering whole disc	Reactive Layer comprising a dye..., and an oxidized form of a reducing agent...
L0 Substrate	first Substrate

FIGURE B: Layers of *Thompson* vs. Layers of Present Application

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Each and every element set forth in Applicant's claims are not described in the single prior art reference of *Thompson*, because there is no teaching of a non-oxidizable (for example gold or silver) reflective layer between the reactive layer and the data. Based on the information above, Applicant respectfully requests the Examiner to reconsider the anticipatory §103(e) rejection of claims 1-39.

Double Patenting

The Examiner provisionally rejected claims 1-39 under the doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5, and 9 of copending Application No. 09/681,288 ("*Breitung*").

The Examiner explains that both applications "claim the same disk having a leuco methylene blue dye which is reduced using a tin ethylhexanoate." However, in looking at the question of double patenting, the Examiner must look at the specific limitations of the claims, and not a generalization. The improvement of the present invention instead has to do with the composition of the layers as well as the specific orders of the layers. This order of layers is not found in the claims of *Breitung*, and is not suggested by these claims.

Claim 1 of *Breitung* specifically states that there is a data storage layer located between an optically transparent substrate layer and a reflective layer. On the other side of the substrate layer is an oxygen penetrable UV coating with a reactive layer in between. This configuration is illustrated in FIGURE C below.

In the present application, claim 1 limits the configuration of the layers by stating "in sequence: (a) a first substrate layer, (b) a data layer, (c) a reflective layer, (d) a reactive layer comprising a dye...(e) a second substrate layer." This configuration is illustrated below in FIGURE C.

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Configuration of Layers for <i>Breitung</i>	Configuration of Layers for Present Application
Oxygen Penetrable UV Layer	First Substrate Layer
Reactive Layer	Data Layer
Optically Transparent Substrate Layer	Reflective Layer
Data Storage Layer	Reactive Layer
Reflective Layer	Second Substrate Layer

FIGURE C: Layer Configuration of *Breitung* vs. Present Application

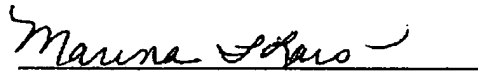
The configuration of the layers is a key element for both inventions. In the present application, due to the layer configuration, the material of the reflective layer may only be comprised of a non-reactive metal such as gold or silver. This is because the reflective layer is in direct contact with the reactive layer. In contrast, the material of the reflective layer of *Breitung* does not appear to be critical and may be comprised of any one of several metals including: "aluminum, silver, gold, titanium, and alloys and mixtures comprising at least one of the foregoing metals, and others." (paragraph 0043) It is not an issue if the reflective layer of *Breitung* is reactive because it is never in contact with the reactive layer. There are always at least two other substances in between.

In addition to the layer configuration differences, there are also differences in the composition of the layers. The present application contains two different substrate layers, each on the outside of the configuration, while *Breitung* contains only one positioned as a middle layer. *Breitung* contains an oxygen penetrable UV layer instead of the second substrate layer contained in the present application.

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Based on the information above, Applicant respectfully requests the Examiner to reconsider the provisional obviousness-type double patenting rejection of claims 1-39.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Marina T. Larson", is written over a horizontal line.

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